

Editorial

The EPG is running a busy schedule of meetings for this autumn, covering several geographical and subject areas, and it is hoped that members will be able to attend as many as possible. Members in need of financial assistance to attend EPG-sponsored meetings are reminded that a Bursary scheme exists to help them. Further information is available at <http://groups.iop.org/EP/bursary.html>, part of the revitalised EPG Web pages which can be found at <http://groups.iop.org/EP/index.html>. Thanks to Paul Williams and Peter Hodgson for their recent work to improve the Web pages; one relevant highlight is the last five years' issues of the Newsletter in pdf and html format, for those feeling nostalgic.

Karen Aplin

Notices

Minutes of IoP Environmental Physics Group 14th Annual General Meeting

held in the Lovelace Room, 76 Portland Place, London, on 11th May 2005

- (1) **Welcome.** The Chairman, Dr Alastair McCartney, welcomed and thanked those members present for their attendance.
- (2) **Chairman's Report.** The Chairman's report gave an overview of the Environmental Physics Group's activities during the past year. It is printed in full below.
- (3) **Secretary / Treasurer's Report.**
 - Several of the committee members' terms have been completed. Karen Aplin and Andrew Rowley will continue on the committee as co-opted members. We intend to seek one further co-opted committee member, to take our committee to 14.
 - On the 31st March 2005, the balance of the EPG was £8878.32
- (4) **Committee Elections.** The following members were elected to the committee: Derek Rose, Ian Colbeck, John Garland, Peter Hughes and Ian Rutt. We are pleased to welcome Ian Rutt (Dept of Geography, University of Bristol) as a new committee member. (A summary of the committee status after the AGM is given in the footnote¹.)

¹ Our EPG committee now comprises:

Alastair McCartney (Chairman, elected until May 2006), Peter Hodgson (Vice Chairman, elected until May 2006), Giles Harrison (Secretary, elected until May 2007), Andrew Rowley (co-opted until May 2007), Karen Aplin (co-opted until May 2007), Derek Rose (elected until May 2009), Edward Youngs (elected until May 2007), Ian Colbeck (elected until May 2009), John Garland (elected until May 2009), Peter Hughes (elected until May 2009), Pat Goodman (elected until May 2008), Paul Williams (elected until 2008), Ian Rutt (elected until May 2009)

- (5) **Essay Competition.** Peter Hodgson gave details of the new Environmental Physics Essay Competition. This will be widely advertised, with a £500 prize. Judging will be undertaken in collaboration with a science journalist.

Chairman's Report: 2004-2005

The Group has continued to be active over the last year. The membership continues to be round 500 (see Secretary's Report), which makes us one of the larger Groups in the Institute. The Committee has met three times since the last AGM (15 September 2004, 12 January 2005 and 11 May 2005) which is the number of Committee meetings we usually hold during a year. The Committee had twelve members, including the Officers.

Group Meetings/Visits

The Group was involved in the organisation of 7 meetings, Table 1. Because of the diversity of members' interests we have continued to co-operate with other IoP Groups and Branches and other organisation in holding meetings. Most of the meeting were either afternoon meetings or evening lectures. As in previous years most of our meetings were held at Portland Place or at other venues in London. The Committee would like to try and hold meetings at regional sites and we are actively seeking opportunities to do so. A meeting is planned on the History of Air Pollution later this year which will be held in Bristol.

In addition to the meetings a highly successful visit to the Eskdalemuir Geophysical Laboratory was held on the 17 July. About 20-25 people attended. A "Members Day" meeting was held on the 19 May 2004 (including the AGM) which was attended by about 35-40 members. The meeting included 7 presentations, 5 posters and a photographic exhibition. As the meeting was successful the Committee has decided to repeat this type of event on a biennial basis. Thus we hope to organise another "Members' Day" in spring 2006.

Meetings in planning

International Conference on Science and Technology Education for Sustainable Development: York 2006. The Group has expressed an interest in arranging a symposium at this meeting. Enquires are being pursued.

Table 1: Meetings and Visits

Date	Title	Type	Venue	Co-sponsor
19/5/04	<i>Members Day</i>	Half day	Portland Place	
17/7/04	<i>Eskdalemuir Geophysical Laboratory</i>	Visit	Eskdalemuir, Dumfries	
6/6/04	<i>Weather and Disease</i>	Half day	Portland Place	
9/9/04	<i>Optical Environmental Sensing</i>	Day	Glasgow	Optical Group
20/10/04	<i>Solar Variability and Climate Change: Prof Joanna Haigh, Imperial College, London</i>	Evening lecture	Portland Place	London & South East Branch
2/2/05	<i>Beyond Global Warming: Piers Corbyn, Weather Action.</i>	Evening lecture	Portland Place	Energy Management Group*
2/3/05	<i>Life at the Boundaries: the Physics of Survival and Endurance</i>	Half day	Geological Society of London	
23/4/05	<i>Waste Minimisation and Resource Efficiency: the Role of Physics</i>	Half day	Portland Place	

*Principal organiser

Other Activities

Newsletter: Two newsletters were sent out to members, one in October 2004 and one in Spring 2005. I would like to thank Karen Aplin for editing these.

Web Pages: Peter Hodgson is reviewing and revising the information on the EPG site. He has now updated the committee information. We would like the organisers of meetings to include information about their meeting on the IoP calendar on the IoP website.

Bulletin Board: This is not being used, but as there is no effort required to keep it up and running it will be kept open.

Division of Applied Physics and Technology

The EPG agreed at the last AGM that we should join the Division of Applied Physics and Technology, mainly because the Institute is keen for Groups to be affiliated to a Division. The Group is now affiliated to this Division. There

were two meetings of the DAPT (21 Oct 2004 and 24 Feb 2005). Unfortunately I was not able to attend either. However, Edward Youngs attended the meeting on the 21 October. He reported that the new Division seemed much the same as the previous Surface Science and Technology Division, but it is hope that the outlook of the APT division will broaden if more groups become affiliated. A report of the EPG's activities has been forwarded to the DAPT.

Environmental Physics Group Bursary Scheme

The Committee has reviewed and revised the Groups policy on bursaries. Briefly:

- Open to all members of the EPG.
- Bursaries ONLY awarded in support of EPG sponsored or co-sponsored events (help towards travel and or registration costs).
- Successful applicants are expected to write a short report for publication in the Group's Newsletter.

Bursaries can be applied for through either the event organiser or from the Vice-Chair of the Group (at present).

EPG Leaflet

The Committee is currently updating the Group's information leaflet. This is being co-ordinated by Giles Harrison. A second draft has been produced and it is hoped that a final draft will be decided on soon.

Essay Competition

The committee has decided to instigate an annual "Environmental Physics Essay Competition" with a cash prize. The first competition will be held this year (2005-2006). Details of the competition will be announced in the next Newsletter.

Summary

The EPG has continued to be active by organising a range of meetings aiming to promote *Environmental Physics*, and I hope for the benefit of its members. I would like to thank all the other members of the Committee for the hard work they have done over the past year. However, as I said in my last report, the success of the Group needs input from its members, and I would encourage all to do what they can for the Group. This includes considering joining the EPG Committee!

Alastair McCartney (Chair)
11 May 2005

Essay Competition

Entries are invited for the new EPG essay competition. The intent is to encourage and recognise excellence in communicating the significance, value and rewarding nature of engaging with environmental physics. Entries should cover any aspect encompassed by the Group's interests in environmental physics, which include, but are not limited to: atmosphere and climate; hydrology; plant physics; waste; energy and the built environment. The target audience should be within the range spanning A-level science students through to Institute members.

- a £500 prize will be awarded to the winning author;
- the winning entry will also be considered for publication in Physics World;
- the competition is open to all, but entries from students are particularly welcome;
- the author of the winning essay may be invited to present a synopsis at the Group's Member's Day meeting in May 2006;
- the closing date is 31st December 2005;
- essays should be up to 2000 words.

Entries must be original and will be judged on writing quality and content. Essays adopting a purely scientific, policy-related or some other perspective will be welcomed.

Entries should be sent to: env.essay@physics.org, preferably as a pdf file, along with full contact details and student status if appropriate. Entries may be also be submitted by post to:

The Vice-Chair,
Environmental Physics Group,
c/o The Institute of Physics,
76 Portland Place,
London,
W1B 1NT

Further details are available on the Group's web site <http://groups.iop.org/EP/>

Forthcoming Events

Energy – the Big Issues

25 October 2005, Institute of Physics, London
Institute of Physics Energy Management Group

The big energy issues and the energy questions to be faced in the twenty first century are numerous. The rising price of oil comes to mind immediately. Will the prediction by Matt Simmons, former energy adviser to President Bush, that oil could easily top \$100 a barrel come true, and if so what will that do to the world economy and economic growth? When will peak oil arrive? Can the major oil companies such as Shell and BP find more oil from secondary sources such as tar sands and from more remote locations such as Alaska and Siberia? Have countries like Saudi Arabia overestimated their oil reserves as some analysts predict?

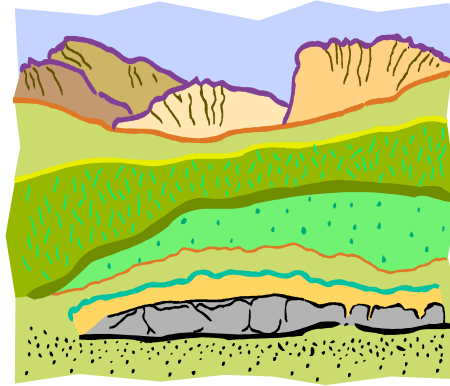
Can gas fill the gap? Will gas reserves from non western countries be freely available without disruption of supply? How secure are such supplies? Will government subsidies for renewables such as wind power lead to much higher energy and electricity prices for consumers? Can such subsidies be justified? Can we rely on them for a stable electricity supply? Will there be electricity blackouts in future? Will there be a nuclear renaissance? If so what will be the impact on British Industry? How does British industry, the wealth creators of our society, view the current energy situation in our country ? In an age of scarce supplies of oil with ever rising prices can economic growth so favoured by the Chancellor be maintained? Can present consumption rates be maintained? Can new energy technologies fill the gap?

These are just some of the vital energy questions facing us today and this energy seminar "Energy-the big Issues" run by the Energy Management Group and with world class speakers, will try to answer some of them.

The registration deadline is 17 October 2005

The full programme and online registration details are available on the following web page: <http://conferences.iop.org/EBI/>.

Investigations into Soil Architecture



Wednesday 2 November, The Institute of Physics, London

Institute of Physics Environmental Physics Group
British Soil-Water Physics Group

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|-------|---|
| 13.30 | Welcome and Introduction – Edward Youngs |
| 13.40 | Life and Architecture of Soil – Iain Young, John Crawford,
Alistair Houston, Dnirty Grinev, Xiao Xian Zhang, Ruth Falconer,
Debbie Feeney – University of Abertay |
| 14.20 | The Benefits of Quantifying Soil-pore Structures using X-ray
Computed Tomography (CT) and Image Analysis – Sacha J.
Mooney – University of Nottingham |
| 15.00 | Tea |
| 15.30 | Magnetic Resonance STRAFI – Studies of Soil architecture –
Edward W. Randall – Queen Mary College, University of London |
| 16.10 | Comparison of Simulated Void Structures with NMR and Thin
Section Data – G. Peter Matthews – University of Plymouth |
| 16.50 | General Discussion and Closure – Derek Rose |
| 17.30 | Close |

Please indicate your intention of attending this meeting by replying by 26
October to:

E.G. Youngs, 9 Roundwood Park, Harpenden, Herts. AL5 3AB.

Tel.: 01582 460859: E-mail: e.g.youngs@cranfield.ac.uk

EPG/BSWPG, Investigations into Soil Architecture, 2 November 2005, 13.30
at the Institute of Physics, 76 Portland place, London.

I will be attending this meeting (there is no charge for attendance):

Name:

Address:

Telephone number:

E-mail address:

History of Air Pollution



Wednesday 30 November, Dirac House, Bristol

Environmental Physics Group

History of Physics Group

South West Branch

2.00 Registration

2.25 Introduction – Dr Karen Aplin (Space Science and Technology, Rutherford Appleton Laboratory)

2.30 *Air pollution in ancient times – from Babylon to Billingsgate* – Prof Peter Brimblecombe (Environmental Sciences, University of East Anglia)

3.00 *Fog, smoke and the press in 19th century Britain* – Prof Ian Colbeck (Biological Sciences, University of Essex)

3.30 *Deconstructing air quality from Monet's London Series c. 1900* – Dr John Thornes (School of Geography, Earth and Environmental Sciences, University of Birmingham)

4.00 Tea

4.15 *A century of air pollution measurement* – Dr Giles Harrison (Meteorology, The University of Reading)

4.45 *Standardizing Smoke: Measuring and Monitoring Air Pollution in British Cities, 1910-1960* – Dr Stephen Mosley (Cultural Studies, Leeds Metropolitan University)

5.15 Summary and Refreshments

6.00 Close

There will be no charge to attend this meeting, but pre-registration is compulsory for security reasons. Further information and a link to the registration form can be found at <http://conferences.iop.org/HAP/>

Environmental Physics Group Members' Open Day

First Announcement & Call for Presentations

Physics and the Environment

Wednesday 10th May 2006

Institute of Physics
76 Portland Place
London W1B 1NT



Building on the success of the two previous events, the Institute of Physics Environmental Physics Group Committee is please to announce that the third **Members' Open Day** will take place on 10th May 2006 at 76 Portland Place. In common with the earlier meetings, ***Physics and the Environment*** will be an excellent opportunity for the community to get together and discuss the diversity and depth of environmental physics.

Following the format of the previous open days, the meeting will comprise a series of talks, poster presentations and exhibitions over the course of the day. There will also be several opportunities to talk informally to colleagues, including over a buffet lunch.

There will be **no charge** to group members attending the meeting. Non-members will also be very welcome to attend (limited number of places available) subject to a registration fee.

Members are invited to contribute oral and poster presentations to the meeting. Other offers of contributions (*e.g.* photographic display, table-top demonstration) related to members' interests in environmental physics are also welcome. In the first instance please indicate your level of interest by returning the form overleaf by **31st December 2005**.

The Environmental Physics Group will be allocating a small number of *EPG travel bursaries* to this meeting to assist in travel costs.

Please return the form to: Dr. Andrew Rowley, C-Tech Innovation Ltd, Capenhurst Technology Park, Chester CH1 6EH or send an Email with same details to: Andrew.Rowley@ctechinnovation.com

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Environmental Physics Group Members' Open Day "Physics and the Environment" at the Institute of Physics, 76 Portland Place, London, Wednesday 10th May 2006

Name: -----

Address: -----

Tel.: -----

Email: -----

- ☐ I am interested in contributing a presentation to the meeting (please indicate title or subject)

(Oral/Poster)

- ☐ I am interested in contributing in some other way (please indicate your idea)

- ☐ I am interested in attending the meeting

Oceans '07 First Announcement

The Environmental Physics Group are supporting OCEANS '07 Europe, which will be held in Aberdeen Scotland (18 - 21 June 2007) under the auspices of the IEEE/OES, to provide the premier forum for scientists, engineers and end-users world-wide to present their latest research, innovations, ideas and solutions in all areas of oceanic observation, understanding and measurement in 2007. The theme of 'Marine Challenges: Coastline to Deep Sea' highlights both the diversity and range covered by the field of oceanic engineering, and the impact its research and development makes on marine science.

OCEANS '07 Europe will be both a scientific conference and a major related exhibition with:

- * Plenary sessions and Keynote speakers
- * Scientific and Technical Papers
- * Student Posters and Tutorials
- * Exhibition of major ocean engineering companies and related technologies

Contributions for scientific and technical sessions will be called for in 2006.

Environmental Physics News

The Public Fountains of the City of Dijon

Henry Darcy's oft-quoted work by soil physicists and groundwater hydrologists as the original basis of quantitative theory of soil-water movement has now been translated into English by Patricia Bobeck after nearly 150 years. His law of water movement through sands and the description of his experiments on the water flow down sand columns in the grounds of the hospital in Dijon that led him to this law are described in only five pages in an appendix. The main work itself contains an historical review of the health hazards and causes of polluted water supplies and Darcy's search for a good unpolluted water supply for Dijon, requiring him to consider the water supplies for other cities in Europe. Darcy's book also provides the detailed engineering design of the water supply system he provided for Dijon and describes the legal



documents that had to be drawn up for its construction. The title page of the English translation reads, "The Public Fountains of the City of Dijon. Exposition and Application of Principles to Follow and Formulas to Use in Questions of Water Distribution. The book ends with an appendix

on water supplies of several cities, water filtration, and the manufacture of cast iron, lead and sheet metal and bitumen pipes. Henry Darcy, Inspector General of Bridges and Roads." It also quotes De Jussieu, *Histoire de l'Academie royale des sciences*, 1733, p. 331, "Good water quality is one of the things that contributes most to the health of the citizens of a city. There is nothing of more interest to magistrates than maintaining the healthfulness of the water that serves both men and animals and preventing accidents that cause the water to become polluted, whether in springs, rivers, and streams where it flows or in places where diverted water is stored, or in wells used as sources".

Les Fontaines Publiques de la Ville de Dijon by Henry Darcy, published by Victor Dalmont (Paris) in 1856; English translation by Patricia Bobeck, published by Kendall/Hunt Publishing Company (Dubuque, Iowa) in 2004 (506 pp + 28 plates: ISBN 0-7575-0540-6),

Edward Youngs

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